

## **CLAIMS**

1. A microporous crystalline material of zeolitic nature, characterized in that it has the empirical formula:



wherein

x has a value less than 0.2;

y has a value less than 0.1:

M is at least one +n charge inorganic cation,

X is at least one chemical element with a +3 oxidation state, preferably selected among Al, Ga, B, Cr, Fe;

Y is at least one chemical element with a +4 oxidation state, preferably selected among Ge, Ti, Sn and V;

and in that, in an anhydrous and calcinated state, at 540°C, an X-ray diffraction pattern in accordance with

d(Å)	(I/IO)*100	d(Å)	(I/IO)*100
11.95±0.02	w	3.82±0.05	m
9.19±0.03	vs	3.69±0.03	w
6.85±0.01	s	3.46±0.07	s
6.12±0.05	w	3.32±0.06	m
5.53±0.03	w	3.25±0.08	w
4.86±0.06	w	3.07±0.03	w
4.73±0.04	w	2.98±0.04	w
4.60±0.02	w	2.88±0.05	w
4.48±0.05	w	2.82±0.06	w
4.35±0.04	w	2.66±0.07	w
4.23±0.02	w	2.56±0.05	w
4.11±0.03	w	2.43±0.09	w
3.89±0.04	m	2.35±0.08	w

wherein

w is a weak relative intensity between 0 and 20%;

m is an average relative intensity between 20 & 40%;

s is an average relative intensity between 40 and 60%;

vs is an average relative intensity between 60 and 100%.

2. A crystalline material according to claim 1, characterized in that

x has a value less than 0.1, preferably less than 0.02,

y has a value less than 0.05, preferably less than 0.02.

3. A crystalline material according to claim 1, characterized in that x has the value of 0.

4. A crystalline material according to claim 1, characterized in that M is H.

5. A material according to claim 1, characterized in that

x has a value of 0.0025 to 0.035;

M is at least one inorganic cation with an n valence,

X is Al, and

y is zero.

6. A material according to claim 1, characterized in that M is selected among inorganic cations of the group comprised of hydrogen and alkaline metals.

7. A material according to claim 1, characterized in that M is selected among Li, Na, K and combinations thereof.

8. A material according to claim 7, characterized in that M is Li.

9. A material according to claim 1, characterized in that it has a Si/X ratio between 30 and 400.

10. A material according to claim 1, characterized in that before calcination it is a precursor with an X-ray diffractogram according to

d(Å)	(I/IO)*100	d(Å)	(I/IO)*100
11.22±0.02	vs	3.60±0.08	s
10.10±0.03	w	3.53±0.05	vs
8.81±0.05	w	3.42±0.06	s
7.05±0.01	w	3.36±0.04	s
6.30±0.01	m	3.32±0.05	w
5.60±0.02	w	3.30±0.01	w
5.28±0.05	s	3.14±0.07	w
4.98±0.06	s	3.10±0.02	w
4.72±0.01	w	3.09±0.03	w
4.38±0.02	s	3.01±0.01	w
4.21±0.02	s	2.81±0.04	w
3.90±0.03	w	2.61±0.04	w
3.83±0.08	m	3.51±0.05	w
3.73±0.07	m	2.48±0.09	w

11. A process to synthesize the crystalline material of claim 1, characterized in that it comprises

- a first step wherein a precursor is prepared by subjecting to heating, with or without stirring, at a temperature between 100 and 225°C, preferably between 125 and 200°C, a reaction mixture that contains
  - a SiO<sub>2</sub> source,
  - optionally a source of at least another tetravalent element Y preferably selected among Ge, Ti, V, Sn,
  - optionally a source of at least another trivalent element X preferably selected among Al, B, Ga, Fe, Cr,
  - an organic cation 1-methyl-1,4-diazabicyclo[2,2,2]octane as a structure directing agent,
  - optionally an inorganic cation, preferably a source of an alkaline metal such as for example, an oxide, hydroxide or salt of lithium, sodium or potassium,
  - and water,
- wherein the reaction mixture has a composition, in terms of molar ratios of oxides, comprised in the ranges of
  - ROH/SiO<sub>2</sub>=0.01-1.0, preferably 0.1-1.0,
  - M<sub>1/n</sub>OH/SiO<sub>2</sub>=0-1.0, preferably 0-0.2,
  - X<sub>2</sub>O<sub>3</sub>/SiO<sub>2</sub>=0-0.1, preferably 0-0.05, and more preferably 0-0.01,
  - YO<sub>2</sub>/(YO<sub>2</sub>+SiO<sub>2</sub>) less than 1, preferably less than 0.1,
  - H<sub>2</sub>O/SiO<sub>2</sub>=0-100, preferably 1-50,

wherein

- M is at least one +n charge inorganic cation;
- X is at least a trivalent element, preferably selected among Al, Ga, B, Cr, Fe;
- Y is at least a tetravalent element, preferably selected among Ge, Ti, Sn, V;
- R is an organic cation, preferably 1-methyl-1,4-diazabicyclo[2,2,2]octane,

until crystallization of the reaction mixture is achieved;  
a second stage wherein the precursor is dried and subjected to calcination.

12. A process according to claim 11, characterized in that the organic cation 1-methyl-1,4-diazabicyclo[2,2,2] octane is added in the form of a hydroxide and another salt, preferably halide, to the reaction mixture.

13. A process according to claim 11, characterized in that the precursor is calcinated in an air flow, at a temperature between 300°C and 800°C for at least 3 hours.

14. A process according to claim 11, characterized in that an amount of crystalline material, preferably with the characteristics of the material of claim 1, is added to the reaction mixture as a crystallization promoter, said amount being comprised between 0.01 and 15%, preferably between 0.05 and 5%, by weight referred to the total amount of silica added.

15. A catalyst in the catalytic conversion process of organic compounds, comprising a microporous crystalline material of zeolitic nature defined in claim 1.

16. A method for the dewaxing of paraffins, comprising contacting said parafins with the catalyst of claim 15.

17. A method for the isodewaxing of wax,  
comprising contacting said wax with the catalyst of  
claim 15.

18. A method for toluene deproportionation,  
comprising contacting said toluene with the catalyst of  
claim 15.